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## TRANSACTION METHOD AND SYSTEM

**FIELD OF THE INVENTION**
The present invention relates to a method and system for
5    performing transactions, of particular but by no means
exclusive application in calculating and awarding rewards
to customers enrolled in a rewards program, which can be
used in both online and offline environments, and to an
electronic token for use in such a system.

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**BACKGROUND OF THE INVENTION**
The following description refers to, *inter alia*, the use
of Customer Interaction Devices (CIDs) that may be
equipped with Token Acceptor Devices (TADs) for reading
15   data from and writing data to 'smart' electronic tokens
such as smart cards (collectively referred to as tokens).
Existing customer rewards systems that use tokens for
rewards management involve processing and computation of
rewards in CID/TADs.  Such systems are only able to make
20   use of the limited amount of customer profile information
available in a customer's token.

Prior art reward systems also focus on customer rewards
centred on the token, or the host server, and do not
25   provide a consolidated approach to customer rewards which
takes into account customer activities through all
channels, including those that do not involve the use of a
token.

30   Further, in prior art token-based systems, transaction
information from CID/TADs is eventually consolidated and
tracked in a central host server.  Such systems typically
suffer from reconciliation difficulties, where the reward
balances tracked in the token do not reconcile with the
35   balances in the host server accumulated from the data sent
from the CID/TADs.  The main reasons for such
discrepancies include the loss of transaction data from

the CID/TAD prior to the data being received in the host server and, in a second instance, problems arising during the updating of the token (known in the industry as 'torn' or 'broken' transactions).

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It is an object of the present invention to at least reduce this problem by providing a reward system and method that can combine the rewards awarded at CID/TADs in an offline mode with computation and award of rewards

10    performed at a server (such as a host computer system) in an online mode, where rewards computation can be based on greater quantities of customer information.

## SUMMARY OF THE INVENTION

15    The present invention provides therefore a transaction system for use by a plurality of users, comprising:

a plurality of electronic tokens for storing and processing token transaction data and token reward data, each of said electronic tokens for use by a respective

20    user;

a computer server for storing and processing server transaction data and server reward data associated with each of said respective tokens; and

a plurality of user interaction devices for

25    communicating with said server, at least one of which is provided with a token acceptor device for reading from and writing to said tokens;

wherein said server transaction data and said token transaction data are indicative of at least one

30    transaction and said server and token reward data are indicative of rewards or entitlements earned or otherwise awarded, and said system is operable to transfer, for a respective token, server reward data from said server to said respective token and token reward data from said

35    respective token to said server by means of said user interaction device provided with a token acceptor device, whereby said rewards or entitlements are redeemable either

according to reward data stored on said token or according
to reward data stored on said server.

Thus, reward data is available offline (i.e. on each
token) and online (i.e. on the server), and can be
transferred between these two as at least one of the user
interaction devices has a token acceptor device for
reading from and writing to the token.  This enables a
business to provide comprehensive customer rewards that
takes full cognisance of the customer's relationship with
that business.  As an example, a typical reward system may
award more points to a Customer A who makes a larger
purchase at a CID/TAD compared with a Customer B who makes
a smaller amount of purchase.  However, Customer B
actually may have a broader and deeper relationship with
the reward program operator (e.g. a bank).  For example,
Customer A may be just a credit card customer of the bank
for only a month, whereas Customer B has been with the
bank for 10 years and has a multi-product relationship
with the bank, such as having fixed deposits, housing
loans and unit trust investments, in addition to being a
credit card customer.  Instead of awarding more points to
Customer A, Customer B should receive more (despite the
smaller purchase amount).  Therefore, it would be unjust
merely to award a customer simply according to an instant
prevailing transaction taking place at a CID/TAD: this can
be avoided by means of the present invention.

Preferably each of said tokens is additionally adapted to
store token user data pertaining to said respective user.
Further, preferably the server is additionally adapted to
store server user data pertaining to said respective user.

In one embodiment, each of the tokens is additionally
adapted to store token user data pertaining to said
respective user, the server is additionally adapted to
store server user data pertaining to said respective user,

and said system is operable to synchronize said token user
data with said server user data for a respective user when
the respective token of said user is used with one of said
user interaction devices having a token acceptor device.

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Preferably the system is operable by each of said users 1)
to transfer reward data from said server to a respective
token of said respective user so that said respective user
can redeem said rewards or reward points by presentation

10    of said token, and 2) to transfer reward data from a
respective token of said respective user to said server so
that said respective user can redeem said rewards or
reward points by communicating with said server.  More
preferably each of the user interaction devices is

15    operable to send said token transaction data and said
reward data to said server.

Preferably each of the tokens is any one of: an integrated
circuit chip card (commonly known as smart card), a chip

20    in a mobile telephone, a chip in a personal digital
assistant, a chip in a watch, and a chip in a key chain,
wherein each of said tokens is operable to interact with
said token acceptor device.

25    Further, the interaction between the tokens and the token
acceptor device may be either in contact or contactless
modes.  The former may comprise inserting the token into a
slot or swiping the token through a slot; the latter may
comprise using the mobile telephone network, radio

30    frequency, infra-red or Bluetooth (TM) wireless
communications technology.

Preferably the transaction data includes, for each
transaction, unique transaction identification data.

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Thus, the transaction data preferably includes data
pertaining to specific transactions, but additionally this

data should preferably include unique identification data
identifying that transaction.

Preferably the system is operable to transfer data between
5    said server and said tokens so that said system can
reconcile said transaction data or said reward data.

Preferably the user interaction devices are provided with
processing software for computing entitlements from said
10   transaction data and recording said transaction data and
entitlement or rewards data in said user interaction
device, and for recording said transaction data in said
tokens when said tokens are presented at said user
interaction devices in the course of a transaction or
15   activity.

Preferably said server is operable to check said
transaction data for duplicates and to record transactions
that are not duplicated, and to accumulate the reward data
20   for respective said transaction data in said rewards data
in said server.

Preferably the transaction or activity comprises any one
of: a purchase transaction, a payment transaction, a cash
25   withdrawal transaction, a transaction to consume or redeem
an entitlement, a visit, a subscription to a service, a
use of a service, a retrieval of information, a request
for information, a submission or provision of information,
an application for membership, an access to a web page, a
30   participation in an event, and a registration for a
particular activity.

Preferably each of said tokens is further adapted to store
redemption data indicative of previously redeemed rewards
35   or reward points.

Preferably the user interaction devices are provided with

processing software for computing an available balance of
entitlements from at least some of said token transaction
data, said redemption data, and said token reward data.

5    Preferably the user interaction devices are operable to
display or print an available balance of entitlements.

Preferably the user interaction devices are operable to
prompt a respective one of said users for an input
10   indicative of whether said respective user wishes to
redeem any reward according to an available balance of
entitlements in an instant transaction.

Preferably the system is operable to transmit said
15   transaction data and said respective reward data for each
of said transaction records in said user interaction
device to said server, and said server is operable to
check said transaction data for duplicates, to discard
duplicates, to record said transaction data that are not
20   duplicated and to accumulate said respective reward data
in said server reward data.

Preferably at least some of said user interaction devices
are configured to transmit to said server said token
25   transaction data corresponding both to an instant
transaction and one or more previous transactions, thereby
providing redundancy in the transaction data received by
said server.

30   Thus, it is possible by this approach to ensure a high
degree of reliability and synchronicity of the data on
token and in the server, by means of this redundant
transfer of transaction data in which data is sent from
two independent CID/TADs to ensure integrity and
35   completeness of data received at the server.

Preferably the system is configured to reconcile said

token transaction data and said token reward data with
said server transaction data and said server reward data
when any of said respective tokens is used with a user
interaction device provided with a token acceptor device
5    for reading from and writing to said tokens.

Preferably the system is configured to upload said token
transaction data of a respective token to said server and
thereby synchronize said respective token with said
10    server, when said token is used with a user interaction
device capable of data communications with said server and
provided with a token acceptor device for reading from and
writing to said token, and the token transaction data in
said respective token having been previously added to said
15    token when previously used with a user interaction device
and where said token transaction data has not been
previously transmitted to said server.

Thus, this embodiment addresses the aforementioned problem
20    of many token-based systems: the accuracy of data in the
token.  The embodiment allows the redundant collection of
data at the server to ensure a high degree of reliability
and synchronicity of the data on token and in the server.
A unique mechanism is disclosed by which data is sent from
25    two independent CID/TADs to ensure integrity and
completeness of data received at the server.

Preferably the server is configured to receive transaction
and activity data corresponding to transactions or
30    activities of a respective user on other business systems
that do not incorporate the use of the respective token of
said user, for determining rewards or entitlements to be
awarded for said transactions and said activities, and
recording the balance of such entitlements in said reward
35    data corresponding to said respective user.

Preferably the system is configured to associate a

respective username and password combination with each
respective token, so that the respective user associated
with said respective token can access said server reward
data pertaining to said token by communication with said
5    server and without said respective token.

Preferably, when said token reward data of a respective
token is transferred to said server (preferably at the
specific request of respective user of said token), said
10   transferred token reward data is incorporated into said
respective server reward data pertaining to said
respective token, and removed from said respective token.

Preferably, when said server reward data corresponding to
15   a respective token is transferred to said respective token
(preferably at the specific request of respective user of
said token), said transferred server reward data is
incorporated into said respective token reward data of
said respective token, and removed from said server.
20
In one embodiment, the system is for use by a plurality of
Providers of goods, services or both goods and services.

In another embodiment, the system is for use by a
25   plurality of groups of Providers, each group comprising
one or more Providers, each of said groups providing a set
of entitlements to said users, and each of said groups
having its own set of business rules for awards and
redemptions of entitlements, wherein balance information
30   of said set of entitlements is kept in each of said tokens
and, for each of said set of entitlements, said server
holds one set of offline reward data (preferably token
reward data) and one set of server reward data.

35   Preferably rewards can be transferred from a first of said
tokens to a second of said tokens by transferring either
token reward data or server reward data from said first to

said second token, subject to business rules set by the
respective Providers.

Preferably the transfer is effected by means of one or
more of said user interaction devices configured to
transmit information about said transfer to said server
for updating the server reward data corresponding to said
first token and said second token.

Preferably the user interaction devices are located in a
plurality of countries, said countries collectively employ
a plurality of currencies, and said user interaction
devices in each of said countries transact in a respective
local currency, and wherein said tokens contain
entitlement information based on said token reward data
converted to the local currency of the respective user
interaction device by said user interaction device or by
said server so that an entitlement can be redeemed in a
respective country.

Preferably the system is configured to convert entitlement
information awarded by a respective said user interaction
device in a local currency to the currency of said
respective token.

Preferably each group of a plurality of groups of
Providers maintains in each of said tokens profile data
relating to said respective group and of a user of said
respective token, wherein a first of said groups of
Providers can establish a business relationship with a
second of said groups for the purpose of sharing the whole
or parts of said profile data relating to said second
Group, and ask a particular user at one of said user
interaction devices of said first Group, during a
transaction or activity, for permission to use said
profile data for making an offer relevant to said
respective user according to business rules encoded in

said user interaction device, wherein user interaction device is provided with a token acceptor device for reading from and writing to said tokens and said user of said respective token can indicate consent by entering a

5    password or PIN, which is used by said user interaction device to access said profile data.

Preferably the system is operable to allow a first of said users to leave a standing instruction recorded in said

10    server to transfer entitlements from said server reward data to credit a specified account.

Preferably the specified account is adapted to receive said transferred entitlements as payments of insurance

15    premiums, for telecom bills, utility bills, outstanding loans or for other goods or services, the reward data of another set of entitlements of the same user or the reward data of another set of entitlements of another user, and said transfer can be effected on a regular basis or when a

20    set of specified conditions are met.

The invention also provides a method for performing transactions by a plurality of users, comprising:
        providing a plurality of electronic tokens for

25    storing and processing token transaction data and token reward data, each of said electronic tokens for use by a respective user;
        providing a computer server for storing and processing server transaction data and server reward data

30    associated with each of said respective tokens; and
        providing a plurality of user interaction devices for communicating with said server, at least one of which is provided with a token acceptor device for reading from and writing to said tokens;

35        wherein said server transaction data and said token transaction data are indicative of at least one transaction and said server and token reward data are

indicative of rewards or entitlements earned or otherwise
awarded, and said system is operable to transfer, for a
respective token, server reward data from said server to
said respective token and token reward data from said
5   respective token to said server by means of said user
interaction device provided with a token acceptor device,
whereby said rewards or entitlements are redeemable either
according to reward data stored on said token or according
to reward data stored on said server.
10

The present invention also provides a transaction system
for use by a plurality of users, comprising:
        a plurality of electronic tokens for storing and
processing token activity data and token reward data, each
15  of said electronic tokens for use by a respective user;
        a computer server for storing and processing
server activity data and server reward data associated
with each of said respective tokens; and
        a plurality of user interaction devices for
20  communicating with said server, at least one of which is
provided with a token acceptor device for reading from and
writing to said tokens;
        wherein said server activity data and said token
activity data are indicative of at least one activity and
25  said server and token reward data are indicative of
rewards or entitlements earned or otherwise awarded, and
said system is operable to transfer, for a respective
token, server reward data from said server to said
respective token and token reward data from said
30  respective token to said server by means of said user
interaction device provided with a token acceptor device,
whereby said rewards or entitlements are redeemable either
according to reward data stored on said token or according
to reward data stored on said server.
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Thus, it should be understood that, while the principal
application of this invention may be in the area of

rewards systems in which benefits are paid for transaction activity, it may also be used where other types of rewards are earned in response to other types of activities. For example, an activity might comprise engaging in work in

5    which case the reward or entitlement will comprise wages, in which case the transaction is the exchange of labour and wages. For example, in environments such as offshore oil fields and mining areas where communication with a host computer is difficult or expensive, the tokens can be

10   used to store activity data (e.g. hours worked) and reward or compensation data (e.g. wages derived from transaction data on the tokens and formulas on the user interaction devices). Wages can then be paid to the users (e.g. in the form of cash) by reading the reward data from the

15   tokens. It is possible that additional benefits (such as medical or educational benefits) may also be included in the reward data and ultimately paid to the users (such as owing to changes in regulatory or union rules) and such data may be updated in the server but not initially in the

20   tokens. Data on the token and the server are then preferably synchronized whenever communication between the user interaction device (with a token acceptor) and the server is possible.

25   Alternatively, the activity might comprise a weight-loss program, in which the activity of losing weight is rewarded by cash, credits, points or other negotiable entitlement.

30   **BRIEF DESCRIPTION OF THE DRAWING**
In order that the invention may be more clearly ascertained, preferred embodiments will now be described, by way of example, with reference to the accompanying drawings, in which:

35           Figure 1 is a schematic diagram of a transaction system for conducting a customer rewards program according to a preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

A transaction system for conducting a customer rewards program according to a preferred embodiment of the present invention is illustrated schematically at 10 in figure 1. The system 10 includes a computer server in the form of Host Computer System 12 (which may in fact comprise a plurality of computers) for computing and storing details of user or customer activity and rewards.  The system 10 includes a plurality of user or customer interaction devices (CIDs) located at various vendors or Providers (viz. of goods or services) that are participating in one or more of the rewards schemes; some of the CIDs include a Token Acceptor Device (TAD) 15 and each is therefore referred to as a CID/TAD 14.  Some of the CIDs do not have a TAD, and each of these is therefore referred to as a CID/noTAD 16.  Further, some of the CIDs are in comunication with the Host Computer System 12, but some are not.

The reward details are stored in database Host Rewards 18 on the Host Computer System 12, and are derived from transaction data received from the CIDs 14, 16 at the points of interaction with the customers of the Providers. Each transaction between a customer and a Provider is assigned a transaction identifier, which is added to a Processed Transaction IDs database 18 also on the Host Computer System 12.

The CID/TADs 14 can be in a number of forms, such as a point of sale device (POS) provided with a TAD 15, an automatic teller machine (ATM) provided with a TAD 15, a remote communciations device (such as a mobile phone or personal digital assistant) equipped with or in communication with a TAD 15, or an Internet access point equipped with a TAD 15.  Each CID/TAD 14 also maintains its own transaction log referred to as Txn Log 20.

Each of the CID/noTADs 16 may be in the form of a POS, an ATM, a remote communciations device such as a mobile phone or personal digital assistant, an Internet access point, a
5   telephone for calling into an Interactive Voice Response system, a telephone for calling to a call centre or an arrangement for mailing a centre set up to process mailed instructions.  None, however, is equipped with a TAD.

10   In addition, the system 10 includes other sources 22 of activity and transaction data, such as external business application systems.

Thus, from all of the CIDs 14, 16 and such business
15   application systems 22, the Host Computer System 12 can receive customer activity and transaction data for electronic processing, some or all of which may be received in real-time and some or all of which may be received on a delayed, batched basis.
20
The system 10 also includes customer Tokens 24, each held by a respective customer and - in this embodiment - in the form of a smart card useable for storing data.  The data stored on the Tokens 24 can be updated at the CIDs 14 with
25   TADs 15 at the various points of interaction (e.g. POSs, mobile phones, internet acess points); the Tokens 24 has encoded in it information related to the customer, specifically, Customer Info 26, Transaction Details 28 and Token Rewards Records 30.
30
Transactions processed by the Host Computer System 12 are logged in a Host Txn Log 32, with each transaction identified by a unique transaction ID.

35   Customer Info 26 on each Token 24 contains various pieces of information about the customer that a Provider of rewards may wish to use for determining the entitlement

rules for the respective customer, and can include, for example, a customer's sex, age or age group, income bracket, occupation, and types of products used by the customer.

The Transaction Details 28 are records of customer transactions carried out with a respective Token 24 that entitle the customer to rewards, and include sufficient information for a CID/TAD 14 to compute the customer's entitlement for each of the Transaction Details 28 records.

The Token Reward Records 30 contains the sum total of accumulated rewards in Host Rewards 18 and Token Rewards 34 (defined further below). The Token Rewards Records 30 can hold records of multiple types of rewards, e.g. in the form of different types of points, e-coupons and e-tickets, each reward type corresponding to a reward type in Host Rewards 18 and Token Rewards 34.

Host Rewards 18 contains records of rewards that have been derived from the customer's activities at various points of interactions, using different products and services of the rewards Providers, such as activity and transaction data from all the CIDs 14, 16 and business application systems 22, the customer being uniquely identified in the system 10 by a User Id or User Name, by means of which - together with an associated password or PIN - the user may gain access to the Host Rewards 18 records for, *inter alia*, conducting a balance enquiry, redeeming rewards or transferring of rewards from one reward type to another, or from one user to another.

Token Rewards 34 are the balance of rewards and entitlements awarded to the customer by CID/TADs 14 in offline modes and uploaded to the Host Computer System 12 and updated into Token Rewards 34. The value in Token

Rewards 34 tracks awards made offline in CID/TADs 14 and
is used by the Host Computer System 12 to track the total
amount of outstanding rewards in Token 24.  This value is
frequently not the latest figure, as offline transactions
5    taking place between Token 24 and a CID/TAD 14 are not
posted to this balance immediately but on a delayed
'batched' basis.  This value is, however, generally
adequate for determining to a close approximation the
amount of rewards outstanding in Token 24.
10

The User Id or User Name of a particular customer is
preferably associated with the Token 24 assigned to that
customer, and with all the products and service accounts
that the customer may have with a respective business.
15

In transactions where a Token 24 is used in an activity or
business transaction for which rewards may be awarded, the
CID/TAD 14 records the business transaction details as
Transaction Details 28 onto the Token 24 when the customer
20   uses the Token 24 at the CID/TAD 14.  Such a system allows
offline awards to be made and is particularly suited for
environments where data communications is costly or not
universally available.

25   When operating in offline mode, the CID/TAD 14 computes
the total rewards entitlement of the customer at any one
time by summing up the rewards as recorded in the Token
Rewards Records 30, the Transaction Details 28 (including
the current transaction) and any Customer Info 26 required
30   for the determination of entitlements as defined in
business rules stored in the CID/TAD 14 and Token 24.  The
CID 14 prints and/or displays a new Total Entitlement
(i.e. available rewards after the instant transaction) at
the time of each transaction.  The new entitlement is not
35   recorded in the Token 24, in order to reduce the number of
updates made to the Token 24 to a single record for each
transaction, that is, only the instant Transaction Detail

record is added to the Transaction Details 28 on Token 24.
The new Total Entitlement does not include any rewards
that may have been awarded to the customer in batch mode
and recorded in Host Rewards 18 and which have not been
5  included in the Token Rewards Record 30 which was last
downloaded from the Host Computer System 12.

The CID/TADs 14 send the Transaction Details 28 data to
the Host Computer System 12, either in real-time or on a
10  delayed basis in batches ('batch mode'), together with the
entitlements that were computed in the CID/TAD 14 in
offline mode and displayed and/or printed at the CID/TAD
14 at the time of transaction.

15  Every activity or transaction is uniquely identified,
whether with a Transaction Id, a sequential number unique
to a specific Token 24 and transactions conducted with
that Token.  Each Transaction Id is included in the
Transaction Details 28 and is sent to the Host Computer
20  System 12.  The Transaction Id may alternatively comprise
some combination of data from the Transaction Details 28
record, such as Provider Id, CID Id, Transaction Date and
Time, etc.  In the Host Computer System 12, the
Transaction Details 28 are checked against Host Txn Log 32
25  for duplicates, any duplicate being discarded, and then
processed together with entitlement data, according to
business rules that the Provider deems advantageous to its
business.  Further entitlements to be awarded to the
customer, if any, are thus determined, and the additional
30  entitlements are updated in Host Rewards 18.  The
Transaction Details 28 are logged in the Host Txn Log 32.
Entitlements awarded by the CID/TAD 14 are recorded
separately in the Token Rewards 34.

35  Thus, the system 10 provides for redundant transmission of
transaction data from the CID/TAD 14 to Host Computer
System 12: from a CID/TAD 14 at which a particular

transaction actually takes place, and secondly from a
subsequent CID/TAD 14 that retrieves the Transaction
Details 28 pertaining to that particular transaction and
sends them to the Host Computer System 12. Either one may
5    take place first, as the first CID/TAD 14 may be operating
in batch mode. In both cases, the computed rewards for
the Token 24 will be correct and complete. The redundant
transmission of transaction data increases the reliability
of the system and ensures that the Token data can always
10   be reconstructed reliably.

Entitlements are also computed based on inputs from
external business application systems 22, if any are
involved, and the computed entitlements included in the
15   Host Rewards 18. The customer may then access the Host
Rewards 18 from the various CIDs 14, 16 for the purpose of
making enquiries or claiming the rewards.

ACCESS WITHOUT TOKENS
20   When accessing the records in the Host Computer System 12
from CID/noTADs 16, the customer manually enters his
User Id or some proxy thereof by means of a keyboard or
keypad (or some other data entry device) at the point of
interaction, followed by a password or pass code to verify
25   the customer's authenticity.

Upon gaining access, the customer can choose to claim or
redeem the rewards recorded in Host Rewards 18, which may
be in the form of gifts or gift vouchers, which are sent
30   to the customer via traditional delivery channels, or in
the form of 'points' which can be converted into price
discounts for products and services or for fee waiver or
discount entitlements, from the same or some other
Provider or plurality of other Providers, and such
35   entitlements can then be electronically transmitted to the
business application system 22 which recognises the
entitlement accordingly.

ACCESS WITH TOKENS

At Providers or other customer touchpoints with a CID/TAD
14, the customer accesses the Host Rewards 18 in the Host
5   Computer System 12 by first presenting the Token 24.  Upon
authentication of the Token 24 and user, typically through
use of cryptographic algorithms and Personal
Identification Numbers (PINs) according to conventional
techniques, the system 10 associates Token 24 with the
10  customer's records in the Host Computer System 12, and
then allows the customer to claim any rewards directly
(i.e. online, in which case the records in the Host
Computer System 12 are updated and the customer is given
those rewards or benefits), or entitlements recorded in
15  Host Rewards 18 are transferred to the Token Rewards
Records 30 in the Token 24 for later redemption.  The
customer may then redeem the value stored in the Token
Rewards Records 30 by presenting the Token 24 at points of
interaction equipped with CID/TADs 14; such claims are
20  processed by the CID/TAD 14 in use at the point of
interaction and the claim record is updated in the Token
24 as well as recorded in the CID/TAD 14.  The latter
records are subsequently sent to the Host Computer System
12 for updating into Token Rewards 34 for tracking and
25  reporting.

The Host Computer System 12 can use the Token Rewards 34
to determine, to some degree of accuracy, the amount of
rewards outstanding in Tokens 24, for the purpose of
30  management reports and decision support.

In cases where the rewards in Host Rewards 18 are
'transferred' or 'downloaded' from the Host Computer
System 12 into the Token 24, the transfer or download can
35  be initiated by the customer (with the permission of the
Provider), or initiated automatically by the CID/TAD 14
when specific conditions required by the Provider or

plurality of Providers involved are met. For example, where the Token 24 is used in connection with a service (e.g. a payment service) that requires frequent online connection to the Host Computer System 12 from the points of interaction (CID/TAD 14), the download can occur frequently, such as on every Nth contact; N is a number determined by the Provider, and would be a function of the frequency of Host Computer System 12 awards. In an environment where the Host Computer System 12 frequently processes many transactions from other application sources 22, N may be set lower, in order to update the Token Rewards Records 30 more frequently.

A customer may, from a CID/TAD 14, access Host Rewards 18, which have been computed in the Host Computer System 12 based on activity and transaction data from all the CIDs 14, 16 and business application system 22; the customer may then initiate the transfer of rewards from Host Rewards 18 into the Token 24 for updating the Token Rewards Records 30.

The system 10 may also be configured so that, each time a CID/TAD 14 has online access to the Host Computer System 12, it sends all Transaction Details 28 from the Tokens 24 to the Host Computer System 12, together with the entitlement details for each of the transactions in Transaction Details 28. In the Host Computer System 12 the Transaction Details 28 are checked against the Host Txn Log 32 to determine if they have already been processed before, that is, whether the CID/TAD 14 where the transactions recorded in the Transaction Details 28 occurred have previously sent the transaction data to the Host Computer System 12 for processing. Any duplicates are discarded or logged in a separate log file for information purposes in the Host Computer System 12. Those transactions without duplicates are logged in the Host Txn Log 32 and processed: rewards entitlements

received from the CID/TAD 14 are accumulated in the Token
Rewards 34, and any further entitlements for each of the
Transaction Details 28 are computed and accumulated in the
Host Rewards 18.  On completion of the computation based

5      on all the Transaction Details 28 stored - for that
customer - on the Host Computer System 12, the sum of
rewards in Host Rewards 18 and Token Rewards 34 are sent
to the CID/TAD 14 for updating into the Token Rewards
Records 30 in the Token 24.  The Transaction Details 28

10     records in the Token 24 are marked as cleared (i.e.
Processed), to allow future transactions to be recorded in
their place.  The Host Rewards 18 values are also added to
Token Rewards 34, and Host Rewards 18 are reset to zero to
signify that the values have been transferred to the Token

15     Rewards Records 30.


OFFLINE REDEMPTION
A customer may initiate an 'offline redemption' request,
where the transaction is completely processed and approved

20     at a CID/TAD 14 without the involvement of Host Computer
System 12, using the data in the Token 24, including
entitlements for each Transaction Details 28 record which
has not been marked as Processed (such entitlements being
determined by the CID/TAD 14 computing the entitlements

25     using data in Transaction Details 28 and also where
required data in Customer Info 26, depending on the
business rule); these results are summed with the rewards
from Token Rewards Records 30 to determine the Total
Entitlements, i.e. the total entitlement available for

30     redemption.  The Total Entitlements exclude previous
redemption amounts recorded in the Transaction Details 28,
and exclude Transaction Details 28 records which have been
marked as Processed.


35     When an offline redemption transaction has been performed
successfully, the redemption details are also inserted as
a record into the Transaction Details 28.  This redemption

amount will be deducted from the Total Entitlements the
next time the total rewards is computed. Such offline
redemptions are effected between the CID/TAD 14 and the
Token 24 without involvement of the Host Computer System
5    12 at the time of redemption, thus saving on the
telecommunications cost and time.

During such offline redemptions, only the transaction
details are updated into the Token 24 in Transaction
10   Details 28; the balance of available rewards in the Token
Rewards Records 30 are not updated. This single update
reduces the possibility of 'broken transactions' and
increases the reliability of the system, as well as
ensures that the total entitlement of the customer can be
15   reconciled with the Host Computer System 12 simply by
sending the records in Transaction Details 28 to the Host
Computer System 12.

UPLOAD OF REWARDS FROM TOKEN TO HOST
20   The system 10 further allows the customer to upload Token
Rewards Records 30 and entitlements computed from
Transaction Details 28 which have not been marked as
Processed from the Token 24 to the Host Computer System 12
from CID/TAD 14; the Host Computer System 12 then computes
25   and updates the new Host Rewards 18 based on the
Transaction Details 28 and Token Rewards Records 30. The
records in Transaction Details 28 are marked as Processed
and the Token Rewards Records 30 are set to zero (0).
After it is recorded in the Host Computer System 12 in
30   Host Rewards 18, the customer may access the Host Rewards
18 to redeem them for gifts and other benefits from a
variety of CIDs 14, 16, including those CIDs 16 without
TADs. The Host Computer System 12 may be accessed for
this purpose either via a CID such as a telephone
35   connecting to an IVRS, a mobile or Internet CID, where a
TAD is not available, and where the customer is identified
by means of a User Id and password or some other form of

personal identification number or code entered by the user
or spoken by the user into the CID at the time of access.

In this configuration, when accessing the Host Computer
5    System 12 using a Token 24 at a CID/TAD 14, the user
name/password is not required.  A PIN may be required
depending on the Provider.  The redemption request is sent
to the Host Computer System 12 in real-time and is
processed in the Host Computer System 12, and the rewards
10   status is updated and recorded in the Host Computer System
12.

After such an upload, the rewards recorded in the Token 24
in Token Rewards Records 30 is set to zero; none are then
15   be available for offline redemption.

PLURALITY OF REWARD TYPES
The Token Rewards Records 30 and Host Rewards 18 may
comprise multiple reward types.  Token Rewards 34
20   comprises the same reward types as Token Rewards Records
30.  Each of the reward types carries a different monetary
value or a different type of benefit, and each is subject
to its respective terms and conditions.  There may also be
a plurality of Provider groups, each group comprising
25   different providers, and each group having its own set of
reward types.

A Provider may participate in more than one group.
Each customer can therefore benefit from the different
30   groups of providers and types of rewards when they
patronise the Providers who are members of different
groups.

CUSTOMER ENTITLEMENT
35   The customer may be awarded different rewards based on the
customer's profile, including nature of transaction and
activity, types of goods or services patronised, activity

and transaction history and demographic data. Thus, two
customers performing the same transaction may each receive
different benefits because of their different profiles.
Further, a customer may be required to expressly opt to
5   participate in a given reward type by enrolling in that
reward type, and providing the enrolment information
required by the Providers in the reward type.


REWARDS CONVERSION
10   A customer may be permitted, under conditions which a
Provider or a plurality of Providers determine to be
advantageous, to convert one reward type into another, at
an exchange rate determined by the Provider or Providers
offering the reward. Such a conversion may be effected by
15   the customer, through a CID/TAD 14, by selecting the Token
Rewards Records 30 or Host Rewards 18 to be converted, and
the Token Rewards Records 30 or Host Rewards 18 to which
it is to be converted to. The CID could then be made to
display or otherwise communicate (e.g. aurally) the
20   conversion rate to the customer, and allow the customer to
choose to proceed with the conversion or cancel the
operation.


CONTRIBUTION TO REWARDS
25   Each reward type may be contributed to by a different
Provider or by a group of Providers, each member Provider
of a group contributing a proportion according to mutually
agreed rules, and the plurality of Providers may be hosted
on the same Host Computer System 12.
30
A transaction carried out at a first Provider may entitle
the customer to a First Reward Type provided that customer
meets criteria set by that first Provider. The First
Reward Type may be contributed to by both the first
35   Provider, and optionally by further Providers
(collectively the Contributing Providers) with whom the
first Provider has a prior agreement.

A transaction carried out at the first Provider may entitle the customer to a plurality of reward types, provided the customer meets criteria set by the Providers contributing to the respective reward type; each type of reward may be contributed to by one or by a plurality of Contributing Providers with whom the first Provider has prior agreements.

The system 10 allows the first Provider to offer incentives to its customers with funding from the Contributing Providers, the Contributing Providers benefiting from having made contact with customers of the first Provider. For example, the Token 24 may be used for, say, a payment service with a rewards application. In this case, a first Provider (the payment service Provider) may offer a reward coupon (such as a 20% discount coupon) redeemable at a second Provider if the customer uses the Token 24 with the payment service more than N times in a given time period at the First Provider.

The second Provider accepts the coupon for redemption because the first Provider has helped the second Provider to establish contact with additional customers. The process of computing and awarding the coupon to the customer may be integrated into the payment transaction. Alternatively, this may be effected as a separate transaction in the Host Computer System 12 in batch mode, with the coupon made available for the customer to download (as a Host Rewards 18 record) to a Token 24. The coupon could alternatively be redeemed from the Host Computer System 12 directly by presentation of Token 24, or by presenting a User Id and password, depending on the CID 14, 16 used for the redemption request.

Thus the rewards may, for example, be given to the customer as a reward for using the payment service in the

Token 24. Both the first and second Providers may contribute in varying proportions to the cost of the rewards.

5  Alternatively, the rewards contributed by the first Provider may be kept distinct from the rewards contributed by the second Provider, and each of these types of rewards (given by different Providers) may entitle the customer to different forms and types of benefits, respectively funded

10  by Providers involved.

POOLING OF REWARDS
The system 10 may also be operated to allow each customer to combine or 'pool' his or her rewards with rewards of

15  other customers belonging to a group, to achieve a higher value total reward. Business rules can be effected to limit members of such pooling groups to customers who qualify based on criteria deemed by the Provider or plurality of Contributing Providers to be advantageous to

20  it or them, such as for example limiting pooling to within customers from the same family, or to those having some other form of relationship.

Where Token 24 is used, such pooling of rewards may be

25  effected through online transactions where rewards in the Token 24 of a first Member of a pooling group are transferred to the Host Computer System 12 to the Host Rewards 18 of a second Member (the desired recipient), who is also a member of the pooling group. The Second Member

30  can transfer these rewards to his Token 24 or redeem them directly from the Host Computer System 12. A plurality of such first Members may transfer rewards to the same second Member.

35  Rewards from the Token 24 of a first Member may also be transferred to the Token 24 of a second Member via a CID/TAD 14. The first Member presents the Token 24 at a

CID/TAD 14, which computes the Total Entitlements using the Token Rewards Records 30 and Transaction Details 28 from the Token 24, and writes a 'transfer from' Transaction Details 28 record in the Token 24. The Token

5 24 of a second Member is then presented to the CID/TAD 14, which adds a 'transfer to' Transaction Details 28 record to the Token 24 of the second Member. The transfer transaction is also logged in the CID/TAD 14 for subsequent uploading to the Host Computer System 12.

10 Rewards may also be transferred from the first Member's Host Rewards 18 in the Host Computer System 12 to the second Member's Host Rewards 18 (also in the Host Computer System 12). Alternatively, a plurality of Members may elect to form an automatic pool, so that pooling of the

15 rewards amongst such Members occurs automatically; any one of these Members is permitted to redeem all the rewards (recorded in the Host Rewards 18 in Host Computer System 12) belonging to all of the Members.

20 A single Member of a pool may also be designated as authorised to redeem rewards earned by all the Members in the pool.

STANDING INSTRUCTION FOR POOLING TRANSFERS

25 Rewards recorded in Host Rewards 18 on the Host Computer System 12 from multiple first Members can be automatically transferred, by mutual consent, to a designated second Member's Host Rewards 18, from whence it can be transferred to the second Member's Token 24. This

30 transfer is performed at predefined intervals of time or when defined conditions are met (such as when Host Rewards 18 of a first Member reaches a designated level); the Second Member may then redeem the rewards in an offline mode. Such a transfer could be effected, for example, on

35 an automatic, recurrent basis through a 'Standing Instruction' issued by Members of the group and recorded in the Host Computer System 12 for automatic execution.

In another example, a standing instruction can be established to deduct a first Member's Host Rewards 18 and to credit another account of that first Member, such as a telephone account, a loan account or an insurance premium
5   payable account.


INCENTIVE FOR PROCURING BETTER CUSTOMER INFORMATION
By imposing rules and criteria that must be fulfilled for customers to be eligible to form groups, a Provider can
10   provide incentives to customers to, for example, volunteer information about other family members or other potential group members, thus helping the Provider to build a more complete profile of the customers.


15   CUSTOMER PERMISSION
Each Provider or group of Providers has its own set of customer information profile for a respective customer of that Provider or common to that group of Providers.  Each CID/TAD 14 accesses a designated Host Computer System 12
20   (according to the Provider or group of Providers the CID/TAD 14 belongs to) to download and/or update Provider-specific data in the customer's Token 24.  Such downloaded data complements the transactional behaviour data that is accumulated in the Token 24 in the course of its use
25   during transactions.


Thus, the Token 24 can be loaded with multiple and more comprehensive customer profiles from different Providers or groups of Providers.  The resulting composite profile,
30   with its more complete picture of the customer, can be exploited in the business rules for deriving more relevant and effective customer rewards.   For example, a Provider of car accessories may be interested in customers whose profiles indicate that they own cars.
35

Such sharing of a customer's profile requires the customer's permission.  In system 10, where the customer's

permission for the sharing of the profile has not been
obtained, the CID 14, 16 prompts the customer for
permission to use the profile for the particular award
computation.  The response to a request for such

5   permission (in the affirmative or negative) is recorded in
Transaction Details 28 in the Token 24 for use during
award computation at time of a redemption, and is also
sent to the respective Host Computer System 12 for use
during the host-based award computation.

10

Where a Token 24 is used and the offline business rule (in
the CID) for awarding rewards to the customer require
access to the customer's profile, and the relevant
Provider does not own the customer's profile, the CID/TAD

15  14 prompts the customer for permission to access the
requisite profile for the purpose of the rewards
computation.  The customer's agreement or refusal is
recorded in the Transaction Details 28 in the Token 24.
Transaction Details 28 are also recorded in the CID/TAD 14

20  and periodically transmitted to the Host Computer System
12 for consolidation, reconciliation and reporting.  This
ensures that the Host Computer System 12 takes into
account the customer's consent in the computation of
rewards using the customer's profile.

25

When the customer presents a Token 24 at a CID/TAD 14 for
the purpose of redeeming rewards (i.e. to claim some or
all of the rewards), the CID 14 computes the customer's
total rewards entitlements by taking into account all

30  Token Rewards Records 30 in the Tokens 24 downloaded from
the Host Computer System 12, together with details of all
Transaction Details 28 recorded in the Tokens 24.  Where
the computation of rewards requires access to the
customer's profile, the award is made only if customer's

35  consent to permit use of his profile is recorded in the
transaction record.  This ensures that the customer's
permission has been sought before the customer's profile

information is used for rewards computation.

PLURALITY OF CURRENCY TYPES AMONGST PROVIDERS

A plurality of Providers operating in different currencies
and doing business in different currencies (referred to as
'Operating Currencies'), can reward a customer whose
Operating Currency is different from the Provider's
Operating Currency. Currency conversion rules are
established in the Host Computer System 12 of the
Providers and downloaded to CIDs; when a customer with a
different Operating Currency from that of the immediate
Provider is performing a transaction with the Provider, an
automatic conversion of any reward values (from Provider's
Operating Currency to the customer's Operating Currency
and vice versa) is performed either in the Host Computer
System 12 if the CID is online or at the CID if it is in
an offline mode. This conversion can be performed both
for the purpose of awarding rewards as well as for
redemption of rewards.

A particular reward type may be contributed to by a
plurality of Contributing Providers from different
countries. The Contributing Providers may each be
operating in a different currency. Each Provider (or its
authorised agent) specifies the exchange (both buying and
selling) rates of its currency against a Base Currency
unit agreed with a Settlement Agency. A first Provider
(the 'Issuing Provider') whose reward type is being
contributed to by other Contributing Providers operates in
the Issuing Currency and computes the awards for the
customer in the Issuing Currency. This award is then
apportioned by the Settlement Agency to the Contributing
Providers according to an agreed set of business rules and
criteria, in the Issuing Currency, which values are then
converted into the Base Currency using the Exchange Rate
of the Issuing Currency against the Base Currency. Each
Contributing Provider receives information about the

amount due from or owing to it either in its Operating
Currency or in the Base Currency units, depending on the
business rules of settlement.

5    The Settlement Agency operates a Central Clearing System,
which receives transaction and exchange rate information
from the Issuing and Contributing Providers or from a
third party (such as an operator), and processes the
transaction information in order to determine the amounts
10   due to or from each participating Provider.  Each Provider
may participate in an Issuing capacity, a Contributing
capacity, or both Issuing and Contributing capacities.
The customer at the second Provider may further be
permitted to redeem rewards contributed to by either the
15   First Provider, the Second Provider or both.

The Exchange Rates in the system are set based on mutually
agreed business rules and conditions.  In most cases, each
Provider (or originator of the transaction) sets its own
20   rates (for the customer) against the Base Currency.

Modifications within the scope of the invention may be
readily effected by those skilled in the art.  It is to be
understood, therefore, that this invention is not limited
25   to the particular embodiments described by way of example
hereinabove.

For the purposes of this specification it should be
understood that the word "comprising" means "including but
30   not limited to", and that the word "comprises" has a
corresponding meaning.